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The Role of the Physician in Urban Sanitation*

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CERTAIN questions naturally arise in considering this subject. Is there anything for the physician to do in this sphere? Is it a responsibility which he should accept? If he does so, will it be a help to him in his practice or will it be undertaken from a sense of public-spiritedness only? Considering the role further, can he really practise medicine without reference to this subject? How much is expected of him in the improvement of sanitary conditions?

By sanitation is meant, of course, the establishment of environmental conditions which favourably affect health. Health and sanitation are founded on a partnership in which the official health authority, the private physician, and the family are the contracting parties. We must keep in mind that at no time should the organized health authority and the citizen be in open conflict with each other.

One places the physician in first position in this partnership, with one qualifying note: in matters of sanitation the physician has no real authority. He stands, however, in the enviable position of counsellor and adviser. By virtue of his professional status he is acceptable to the family. If, indeed, sanitary officers would withhold their police powers until a serious effort has been made to advise and convince, I for one believe that they would achieve more. Such a course leads to success because it fosters intelligent good-will.

The physician may have no legal authority but he possesses the equivalent of authority in the respect for his opinion which few care to disregard. For

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example, a certificate given for good reason by his hand has more than once halted the hurried course of an eviction. Similarly, he frequently is the means of getting a supply of fuel for heating before relief departments have started the regular issue. He can halt the evacuation of premises about to be fumigated with lethal gas. These are examples, relating to sanitation, of an influence which is a near-equivalent of actual authority. Surely it is not too much to suggest that a physician is not wholly true to his trust if he permits himself to become too indulgent, even though it be out of the goodness of his heart.

Although devoid of specific authority, the practising physician has rich opportunities in the field of sanitation, and as a result of the confidence which he enjoys of the people of his community he can render valuable service in improving the environmental conditions of the community and in safeguarding the health of its citizens. His opportunities and obligations in sanitation may, for the purpose of this discussion, be considered under the following headings:

1. His influence as a citizen.
2. His counsel to patients who desire advice on sanitary problems.
3. The fundamental health teaching, particularly relating to sanitation, given to his patients.
4. The service to be rendered to the community at large in accepting opportunities for the instruction of the public in sanitation.

No one would make a sanitary officer of the physician but the foregoing are minimum contributions which the community would seem to have the right to expect from the medical profession.

The Physician's Influence as a Citizen

By virtue of his office the physician occupies a position of prominence and influence. More is expected of him in the consideration of matters affecting health than is expected of other citizens. Thus, when a community urgently requires sanitary improvements and sound projects are presented, the health officer should feel that he has the moral support of the medical profession and their active co-operation with others who are publicly minded, in creating an intelligent public opinion.

As an example of the laissez-faire attitude of some physicians, a certain community was suddenly aroused over the sale of unpasteurized cream and milk within its borders. The dairies were retailing only the pasteurized product but unpasteurized milk and cream were sold on a public market. The adverse publicity which was quickly released in the press stirred the Council and on the advice of the Medical Officer of Health further sale was immediately banned. In the course of the short discussion of this matter a statement was made that a number of doctors in the community had said that they themselves had used unpasteurized milk in their homes. Such a statement might well have halted the action taken. Fortunately it did not. One doubts that the doctors made the statement in defence of the continued sale of raw milk. Rather we may believe that they suddenly realized that they had been using such milk. Certainly, unless it was an instance of "Do not as I do but do as I say", these physicians were not exercising the influence expected of them.

The Physician's Counsel to Patients who desire Advice on Sanitary Problems

There is another form of contact that calls forth the best in the doctor's judgment. If and when a person comes to him, as sometimes happens, believing that he is being unjustly dealt with by the health authority, it is advisable that the physician keep in the foreground the thought that the authority is not very prone to err. If his better judgment sees that the health authority is right, it is his duty to be frank and not to waver. If he believes otherwise, he should in a spirit of reservation go directly to, or communicate with the proper authority. To nurture mistrust in public officials is inexcusable under any circumstances.

I would not suggest that these occasions are frequent in the life of the average physician but it is surprising how often they occur. Urbanization with its reduced contact between family and physician would seem to lower the frequency but, on the other hand, the numerical increase of sanitary problems in urban centres offsets the reduction. Further, there is not the same degree of acquaintance between the physician and the medical officer of health in urban centres as in smaller municipalities; consequently the physician may, without consulting the health officer, express opinions as to official action and not acquaint the health officer with the advice which he has given. The resultant situation may be very embarrassing to both the physician and the health officer. The physician who would venture to indicate what official public health can or will likely do must be well and accurately informed of the scope and limits of administrative practice.

For instance, an alleged nuisance must be shown to be a menace to health. There are many fanciful nuisances or menaces and there are offences to our finer senses which will fail to meet the qualifications of a pursuable complaint. Administrative public health, however, does not hew too closely to the line but the adviser in this instance should understand that the odd stone-wall sometimes looms up. In other words, figuratively speaking, he should not promise the city hall to his client.

Secondly, the abatement of even a genuine nuisance often takes time. It is not an offence to have a nuisance but it is an offence to fail to comply with an order to abate one. It is always necessary to serve a notice on the offender. The time which is permitted to elapse varies with the outlay involved and with the urgency of correction. The mood of the violator may add a further interval by occasioning court proceedings. Often these considerations are not appreciated by the complainant and the physician may find himself in the position of buffer.

Every physician should realize that the division of responsibility for abatement of nuisances as between landlord and tenant is not the simple matter it would seem to be. Roughly, the division is between structural defect and the conditions arising out of occupancy. There are, however, so many technical variations that we may express the opinion that the physician should not attempt to take sides, if for no other reason than that this type of problem has already reached the proportions of a dispute when it is referred to him, with usually the one standing before him who feels wronged. The matter should be left to the health authority and even he may have to use the courts for adjudication.

It must also be fully realized that, powerful as it is, public health law knows limits, even as it pertains to certain very acute conditions peculiar to urban life. For example, regulations governing unnecessary noise, if adopted by the municipality, relate only to the hours of sleep. Places of amusement and factories are not easily restrained. There is no redress for disturbance during the daytime as it affects the debilitated, aged, or acutely ill individual. The question of heat in rented property is another unsolved problem. This and the foregoing are the subjects of many, more or less futile, notes or certificates issued by physicians who sometimes illogically insist that the health officer do something.

Next, we might consider some of the things physicians are prone to say and how they say them. The accuracy of certain statements might also be reviewed. Physicians are not garrulous; but they react quickly to that which is displeasing or disgusting. Take for example a home in a rather poor state of repair—plumbing of a poor sort; perhaps infested; yes, perhaps in the hands of poor home management. The physician says: "My! You shouldn't be living in a place like this." The thought is probably as much social as public health Visions arise of a greedy landlord and a house unfit for human habitation. This is quite so in many cases but in others the cause is different. The modern conception of the relation of certain environmental conditions to health has changed. The following example illustrates the modern viewpoint. In a home in this city there was evidence of sewer gas with faecal odours due to a broken drain. Investigation revealed the condition but it and the serving of notices occasioned delay. Some of the members of the household had long suffered from chronic ailments. Two physicians contributed to the conviction that sewer gas is an imminent health hazard and that the ailments of the family were due to its effects. The diversion of attention to sewer gas as a cause of the illnesses has delayed a very necessary consultation in connection with the chronic ailment of one member of the household.

The foregoing references are not offered in any spirit of criticism. Rather the desire has been to indicate that certain changes of approach to problems would materially improve the aid which is so acceptable to the health officer as coming from his associate, the trusted and respected private physician.

Fundamental Health Teaching, particularly relating to Sanitation, Given to Patients

Here we have one of the most sacred of all relationships, that between the family and its physician, usually in a time of need. An implicit trust merits a most conscientious response.

Diagnostic and therapeutic skill of to-day does not overlook the environmental factor as the cause of illness or poor health or of the prolonging of sickness. Hospital social service departments have amply demonstrated the value of bringing to the hospital clinician an outline of home conditions so that due regard may be paid to these conditions in carrying out the orders for treatment and care in the home. In visiting homes the physician sees conditions

at first hand. He must, however, not depend on instructions given but in the absence of a nurse he should see that conditions are improved and that his instructions are carried out. When he sees a patient in his office, in many instances he is in precisely the same position as the hospital clinician and does not know of the home conditions.

In confining our subject to urban sanitation, many of the major problems have been removed. We need not worry about the municipal water supply, the milk supply if pasteurized, food products in store or restaurant if an adequate control is exercised, or sewage disposal. There are, however, other menaces in the best regulated communities and in the individual home. Consequently, when the physician is in attendance on a case of an acute or chronic infectious disease and he orders a separate room for the patient, separate and sterilized dishes, burning or sterilization of the patient's wastes, individual facilities for the washing of the patient and for the person giving nursing care, the most scrupulous cleanliness in the preparation of the food, the proper ventilation of the room and the other essential requirements of satisfactory isolation, aseptic nursing and disinfection, he has before him the golden opportunity for explaining to the responsible persons the meaning of these measures. When directing the ventilation of the sick-room or when speaking of the requirements of the patient's sleeping accommodation, the physician can emphasize the value of fresh air, the hazard of overcrowding, and the reasonableness of proper separation of persons in the hours of sleep.

The physician too has the opportunity of discussing with his patients the safeguarding of their health by dealing with their exposure to communicable diseases in everyday life. The common drinking cup or glass, the necessity of satisfactory washing and storing of dishes in home or restaurant, the danger of the common towel or wash-cloth, are subjects that can naturally be discussed. Too great emphasis cannot be laid on the necessity of clean hands and the providing of suitable facilities in the home, office and factory, stressing the importance of frequent washing and always after the use of the toilet, particulary when proceeding to handle food.

On the occasion of attendance on a case of gastro-intestinal infection, as occurs frequently in infants, there is a special opportunity to explain the values of pure water, a safe milk supply, and the satisfactory disposal of sewage. Omitting that the sick one may have been out of the community, enquiry should be made concerning the manner in which food is prepared and stored in the home, the prevalence of the house-fly, the disposal of garbage, and other related matters.

It would be a simple matter to cite numerous examples of specific opportunities to give health instruction. Even housing conditions which incite, aggravate or prolong illness should not be withheld from frank discussion with the family. Moreover, the aesthetics of sanitation should not be overlooked. The comforts of the sick one, the changing of the bed-linen, the suppression of dust, the reasonable need of quiet under certain conditions, and many other similar considerations all offer the opportunity for the giving of helpful in-

formation. One should, of course, be careful not to misinterpret or magnify the significance of these things, but a household often responds remarkably to the attention given to these details. One must be most careful not to be too pointed or personal in his direction or suggestions.

No one would expect the physician to accomplish much in this connection in a single visit. It is reasonable to presume, however, that in the course of his professional attendance on a family many opportunities will be presented.

In the urban community the physician also may make known the activities of the community for safeguarding health in which people participate without much thought and assist in establishing a pride in the community's program.

The Service to be rendered to the Community by Accepting Opportunities for the Instruction of the Public in Sanitation

We have heretofore spoken of opportunities; we elevate these now to responsibilities. We are passing out of the day when the physician completes his bedside skill with an air of silent wisdom and when he sees nothing outside the path which leads to and from the sick-room. People are conscious of the practicability of helping themselves if properly informed and instructed, and of their adjustment to the environment they make no exception. "Keeping well" as a slogan has replaced "Getting well". The doctor is still accepted as the best teacher, if only he will teach. He must accept this responsibility. Medical schools have sensed the change. More adequate instruction in preventive medicine, inclusive of environmental control, is being given the medical undergraduate. The doctor of tomorrow will have to devise and utilize ways and means of serving his patients beyond the immediate needs of the moment.

"This One Thing We Do"

THERE is this great change in our own concept of our profession: Bankers may be at odds about how or when to stabilize our currency. Our greatest lawyers may disagree in fives and fours about the interpretation of the Constitution. Economists and industrialists may wrangle about the balancing of demand and production and the methods of preventing periodic unemployment. We have no part in their quarrels. *This one thing we do!* We are united in the objectives of our campaign against death and disease. We are sure of its place and importance in the growth of our nation. It is my firm belief, and yours, and by the straightforward doing of our task it can become the belief of the nation, that public health must be supported because of its *human* significance.—*Dr. Thomas Parran: Reporting Progress (presidential address to the American Public Health Association), Am. J. Pub. Health, 1936, 26:1071.*

Adult Immune Serum in Measles Control*

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THE mortality from measles is not assessed accurately in statistical returns. Many measles deaths are found among those listed as bronchitis and pneumonia, chiefly the latter, to which measles is frequently a contributory factor. Pneumonia following measles occurs most frequently in the first two years of life and the case fatality is given as from twelve to twenty per cent. The prevention or postponement of measles until after the age of five years, when the mortality rarely exceeds three per cent, is therefore very desirable. There are, however, many obstacles to this end.

The world-wide distribution of measles and its high attack rate are well-known. Henderson (1), from enquiries addressed to parents of school children in the United States, found that by the age of fifteen 95 per cent had suffered from an attack. Similarly Butler (2), in an analysis of a large group in a city population in England, discovered that 97 per cent of the age group fifteen years and over gave a history of the disease. In a group of five hundred nurses-in-training at the Alexandra Hospital, Montreal, 88 per cent presented a history of the disease notwithstanding the fact that fully half this number came from rural and, in some cases, quite isolated districts. Occasionally the disease is merely postponed till the later years of life. Measles, therefore, is an infection from which few escape and, in most instances, the first exposure is followed by the development of the disease.

In contra-distinction to measles, only a small percentage of adults have suffered recognizable clinical attacks of diphtheria or scarlet fever. Estimates have been published indicating approximately 9 per cent in the case of diphtheria and 12 per cent for scarlet fever. The relatively low attack rates of these two diseases are attributed to the development of immunity by repeated exposures of the population to the organisms of diphtheria and scarlet fever, producing subclinical infections. This fundamental principle was established many years ago by Adami (3) in reference to *B. coli* infections. Clinical manifestations may be so ill-defined in both scarlet fever and diphtheria that the cases may be missed and pass undiagnosed. In contrast, in measles the disease is usually manifested in its typical form. When, however, an insufficient amount of convalescent serum is given or when such serum is given late, the clinical picture may be considerably modified and be atypical.

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Measles in Hospitals

Cases of measles admitted to hospital are invariably in the fourth or later days of the disease with the rash full blown or fading and the characteristic initial symptoms somewhat, if not entirely, abated. At this time the communicability of the disease has declined considerably and secondary cases are, therefore, less frequent. This fact may not be appreciated even in isolation hospitals, and such institutions are apt to commend themselves unduly over their apparent success in the greatly reduced incidence or avoidance of cross-infections from measles, particularly in wards for mixed diseases. It has been the custom to lay great emphasis upon the application of a careful technique to explain the relatively few cases of measles developing among the nursing staff, notwithstanding the fact that a high percentage possess an active immunity, already having had measles. As the nursing care of measles differs so little from that of other communicable diseases, one might question the wisdom of permitting susceptible nurses to suffer an attack of measles at the expense of the institution and to the further jeopardy of the patients with whom they may come into contact during the unrecognized or purposely hidden catarrhal symptoms. This is particularly important where a nurse is on the point of being transferred to another ward in the hospital before the expiration of the incubation period.

The Use of Convalescent Serum

A disease with an attack rate of nearly 100 per cent, with its highest incidence and mortality in the early years of life, calls for the application of every possible control measure. Until such time as the etiological agent is definitely known and prophylactic and therapeutic sera are available, serum from those who have recovered from measles offers our only means of specific prevention or modification of the disease.

Convalescent human serum was used in the prevention of measles by Nicolle and Conseille (4) in 1918 and trial was made by numerous observers in the following years. The possibility of preventing measles by the use of serum from recovered measles patients is well established. That samples of serum vary considerably in potency is also recognized. The amount of serum required to prevent an attack varies with age and day of exposure. For the complete protection of a child under three years of age who has been exposed for from 1 to 4 days, 5 cc. of convalescent serum, 20 cc. of adult serum, or 40 cc. of whole blood given intramuscularly, is generally recommended. In our series a dose of 7 cc. intramuscularly was given as a routine, although excellent results have followed the use of as little as 3 cc.

It is recognized also that the course of the disease may be modified if serum is given in amounts insufficient to prevent the disease. Clinically and from the preventive standpoint the greatest service is rendered by modifying the disease. This attenuated form should, however, present the mild though definite clinical manifestations of measles with no complications. As a result the child develops a permanent immunity. The administration of potent serum prior to the sixth day will usually prevent the disease from developing

by conferring a passive immunity lasting twelve days only in the average case. The administration of serum from the sixth to the eighth day after exposure modifies the course of the disease, producing an active immunity. It is not believed that serum given after the eighth day has any effect, although some authorities consider that the disease may still be modified by serum administered to the tenth day.

It is unnecessary to stress the fact that the athreptic infant or debilitated child should be given sufficient serum promptly so that the disease is prevented, the child meanwhile being isolated. Re-exposure after ten days, if such occurs, should be followed by an additional dose of serum.

In hospitals for communicable diseases where cross-infections are, in large measure, a criterion of efficiency, susceptible contacts should receive the preventive serum as soon as an exposure has taken place. The occurrence of even a mild case of measles as modified by a late administration of serum appears on the records and is recorded as a cross-infection.

Serum from Patients giving a Past History of the Disease—Pooled Sera, etc.

Although blood from patients convalescent from or giving a recent history of measles might appear to possess a higher antibody content than that obtained from patients who suffered from the disease years before, this has not been found to be the case in every instance. Indeed, in two cases almost complete failure attended the use of sera from patients bled on the twentieth day of convalescence, and in one case six persons developed measles through the use of serum obtained from a case seven days after the rash had faded. (No phenol or other preservative had been added in preparing the serum used in this instance.) The persistence of the virus in the blood stream for this period of time must be considered very unusual as the transmission of the virus in blood has rarely been effected in animal experiments after 48 hours from the appearance of the rash.

Owing to the difficulty in obtaining a ready supply of adult donors, as it is undesirable to use children, attention was turned to convalescent scarlet fever patients who gave a history of measles, frequently fifteen to twenty years previously. These sera possessed the added advantage of being available for use in the treatment of scarlet fever patients requiring antitoxin but who were sensitive to the usual antitoxin which is prepared from horse serum. Anticipating a varying antibody content of different sera, it was thought advantageous to pool the serum of several donors, which method subsequently became routine. Blood was collected from uncomplicated cases of scarlet fever about the twenty-fourth day of the disease. Further bleedings were made of some donors a few weeks or months later as the need arose. Male adults, from twenty to fifty years of age, were used and the amount of blood obtained from each averaged from 200 to 400 cc. One half the volume of blood was obtained as clear serum. A Wassermann test was made of the serum of each donor. The blood of each was stored in an ice-chest for forty-eight hours, during which time sterility tests were made. The serum was decanted and pooled with other sera. Phenol, 0.5 per cent, or tri-cresol, 0.35 per cent,

was added and the pooled serum filled in 50 cc. vials. This quantity constituted one treatment dose for scarlet fever cases and seven immunizing doses for measles. The average age of the serum, when used, was between five and nine weeks although, on occasion, and in another series of cases than those reported here, serum stored for eleven months was found to be highly efficient. In such cases, however, fearing a loss of potency, a slightly larger dose was advised.

Results Obtained

Although serum was supplied to other institutions and used with far greater success than failure, the reports obtained were not sufficiently complete to be included in this report. Fourteen successes and one attenuated attack were reported by private practitioners.

Observations were made as to the value of the serum among susceptible contacts at the Alexandra Hospital. In 1934, 105 children, of an average age of from four to five years, exposed to measles, received serum. Eighty-one per cent were protected. All were observed in hospital or observed at home for a period of three or more weeks. Pooled serum was used for 38 children and the serum from separate donors, X, Y, and Z, in 17, 19 and 31 children, respectively. The results are presented in table I.

TABLE I

PREVENTIVE VALUE OF CONVALESCENT SERUM IN MEASLES CONTACTS
105 Children, Alexandra Hospital, 1934

	Number Treated	Developed Measles	Modified	No Measles (Protected)
Pooled Serum.....	38	0	0	38
Donor X.....	17	0	1	16
Donor Y.....	19	0	2	17
Donor Z.....	31	12	5	14
Totals.....	105	12	8	85 (81 per cent)

The average incubation period among those developing measles was 17½ days, and in those in which measles was modified, 19½ days. It will be noted that all the complete failures were found among those who received serum from donor Z. Of the 31 patients receiving this serum and who were given from 5 to 10 cc., 12 developed typical measles, 5 the abortive type, and the remainder—less than 50 per cent—were protected. In this instance, the serum was obtained from a patient believed to have had measles 10 days previously but afterwards discovered to be a doubtful case.

The pooled serum used in 38 instances gave 100 per cent protection. Eighteen of this number were children with whooping cough who had been intimately exposed to measles for a period of three days through contact with a nurse who contracted the disease in another ward and who reported ill only when the rash made its appearance. The serum used in this series was

obtained from four adult males convalescent from scarlet fever, all of whom gave a history of measles in early childhood.

Donors X and Y were also convalescent scarlet fever cases with a history of measles. A mixture of these sera was that supplied to the private practitioners before mentioned who reported excellent results. Together, these two donors supplied sufficient serum for fifty children, with forty-six successes and four cases only of abortive disease, i.e., 92 per cent protection.

SUMMARY

1. The desirability of postponing measles until after the fifth year is emphasized.

2. Its high infectivity is indicated, approximately 90 per cent or more of persons giving a history of the disease.

3. While a modified attack should be the aim of physicians and public health workers, conferring active immunity, in the case of debilitated children and infants prevention of the disease by passive immunity should be attempted.

4. In 105 children, age 4 to 5 years, 81 per cent were protected by serum from adults who had had measles in childhood. The persons used were patients in the Alexandra Hospital who were convalescent from scarlet fever.

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Community Responsibility in Health Services

PUBLIC health in the light of present scientific knowledge goes far beyond environmental sanitation. . . . . It is the *specific* responsibility of public health to provide, through community effort, those services for the saving and life and prevention of disease which the individual is unable to provide, or to provide as well, by his individual efforts. . . . . In principle, I hold the view that all community services for the prevention of disease and care of the sick should be the responsibility of the health department, in so far as such measures are paid for from public funds. The extent to which these services are actually administered by the health department, however, is a matter which can best be decided by the individual state or locality.—*Dr. Thomas Parran: Reporting Progress (presidential address to the American Public Health Association), Am. J. Pub. Health, 1936, 26:1071.*

Some Aspects of Health Administration in Northern Ontario

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NORTHERN Ontario comprises an area several times the size of Southern Ontario; it is a land of forests, rivers and lakes, with no really mountainous areas. The greater part has a northern slope which is drained by four great river systems, all discharging into James Bay. It is traversed, east and west, by three railways—one on its southern boundary, one roughly across its centre, and the third diagonally between these two points. North and south three railway lines divide Northern Ontario roughly into four parts; two of these travel no farther north than the central line, and one continues north almost to James Bay. There are very few main highways, and, as all of these have followed the railway routes, they have not added materially to the settled area. So much for man's artificial aids to travel: these have played an important part in the opening up of the country. Yet Nature has provided others which have been just as, if not more, important. The vast system of lakes and rivers, by which almost every part can be reached in summer, and the winter snows and ice which make it possible not only to travel to otherwise unapproachable places but to transport heavy equipment and machinery thereto, have enabled the scattered population to raise this territory to a surprising pitch of development at a comparatively small cost. A glance at the map would lead one to believe that, apart from the many small towns and villages noted along its railway lines, most of the area is still in an undeveloped state. This is, of course, far from the truth. It has to be remembered that Northern Ontario is the source of supply of many raw materials for manufacture, such as lumber, pulpwood, minerals and farm produce. The nature of these products is such that, except in the case of concentrated development as in mining and farming, the areas being worked over vary from year to year, and require a moving population. In mining, of course, the preliminary discovery and tentative development are of the same nature.

It will be understood from the foregoing why, in addition to the usual methods of sanitary supervision common in the settled areas, special arrangements have had to be made for safeguarding the health of the people engaged in these migratory industries. For more than twenty years the Provincial Department of Health has assumed responsibility for these arrangements and a system of control has been developed with appropriate regulations.

Providing Satisfactory Camps

As practically all the population in the unorganized areas, apart from those engaged in agriculture, consists of persons employed for the time being

in lumbering, mining and in construction work, attention has in the first instance been given to sanitary conditions surrounding the industries employing these people.

Present Regulations

The Regulations of the Provincial Department of Health provide that where an employer organizes a camp for the housing of his employees in any industry, other than farming, he is required, if the number of employees exceeds twenty, to report to the Department, through its District Inspector, the location of his camps, the names of persons in charge, the number of employees it is proposed to house in each of the camps, the means of access to the camps in summer and winter, the physician contracted with for the sanitary supervision of his camps and for the medical attention to his employees, and the location of the hospital to which the sick and injured are to be removed. These Regulations go into great detail in regard to the various points which have to be observed in locating the camps and in their construction; they set out in detail the methods of lighting, ventilation, drainage and garbage disposal, and the method of providing sleeping accommodation and equipment. Amongst other things, no camp is allowed to be located nearer than 100 feet to any lake or stream unless the circumstances are exceptional; the camp has to be provided with a drainage system in such a way as not to cause pollution of such stream or lake; the water supply provided must be safe; in summer the food buildings and toilets are required to be screened against flies and kept free of flies; bunks have to be single and separated from each other so as to prevent the spread of skin diseases, etc., and every employee is entitled to clean bedding on his arrival at camp. The camps are required to have, at least, 400 cubic feet of air-space in the sleeping quarters for each man housed, and an employer can be required to provide a hospital at his camp for communicable disease.

Effect of the Regulations

In the early days the camps left much to be desired, but during the years of control there has been a transformation. This has not been brought about by any great show of force, although, of course, this has had to be resorted to occasionally. Rather it has been a matter of education, with the result that quite a large proportion of employers take such a pride in their camps that the accommodation they provide frequently far surpasses the requirements of the law. This is especially the case in regard to many of the developed mines: these now often provide accommodation equal to that found in smaller hotels, while in the lumber camps the accommodation has improved to such an extent that it frequently exceeds the requirements. For instance, there is a camp built this year twenty miles by river and portage from the railway, and then three miles over exceedingly rough and swampy country. This camp is built to house 160 men, for use during part of four years. It is constructed of peeled logs with close lumber flooring, and lumber and tar felt roofs. The men are, as usual, provided with single bunks with spring mattresses and the usual mattresses and blankets. Attached to the bunkhouses are good washing places, with hot and cold water, drying rooms

for clothes, a steam bath, and a recreation room, where a radio and books, papers and magazines are provided. In the cookery the kitchen is provided with enough cupboard accommodation to house all foodstuffs. Attached to it are sleeping accommodation for the cook's staff with separate light and ventilation and a plunge bath; a large food store; an insulated meat house with complete equipment; and an insulated root store. All the buildings are fly-screened, as are the toilets, which are themselves constructed so as to exclude flies from under the seats. The whole is provided with a drainage system discharging into a covered cesspool; a safe water supply is provided; and a hospital for the immediate segregation of men suffering from colds, etc., has been built and equipped.

Ventilation of Bunkhouses

In the course of the development of such camps it was found that a special system of ventilation was required, since the extremely low temperatures during winter preclude the opening of windows. The system early developed has been found so satisfactory that it has remained a standard, being varied to suit steam-heating. This system, with some refinement, has also been applied in rural schools. The principle is simple. Ducts are carried from the open air above the snow-line to a point under the hottest part of the stove or stoves. The heat at the stove induces a draught of fresh air through the ducts and the air is heated. Ridge ventilators are provided at the points farthest removed from the air inlets in order to ensure as wide a distribution as possible of the heated fresh air. Where such ventilation is not provided, one is immediately impressed by the unsatisfactory air conditions.

PROVISION OF MEDICAL SERVICES AND SUPERVISION OF SANITATION BY PRACTISING PHYSICIANS

The system which has emerged for the provision of medical services to men employed away from settled areas is of particular interest. It has always been provided in the Regulations that the employer is responsible for seeing that sick employees receive medical care, including hospitalization if necessary. He may, if he wishes, contract with a physician convenient to his camps to take over the whole or a part of that responsibility and to provide medicines. To pay this physician, the employer is allowed to deduct up to a dollar a month from the wages of each of his employees. Formerly the employer's responsibility for sickness was unlimited, so that many found themselves burdened with sick employees suffering from chronic diseases which existed at the time employment began. To overcome this difficulty, an amendment to the Regulations provided that in the case of any man found to be suffering from a chronic disease within three months of the commencement of his employment the employer's responsibility ceases when he has returned such employee to the place where he was employed; and, in any case, the employer's liability ceases after three months of treatment or hospitalization. The dollar deducted monthly is, however, held to cover any surgical operation which is necessary in connection with any other sickness. This has resulted in an increase in the number of employees receiving a preliminary medical

examination with the object of reducing the liability of the employer and the contract physician. The responsibility for providing hospital accommodation still remains with the employer but sometimes physicians undertake to carry that burden to a limited extent.

In addition to seeing to the health of his employees, the employer is required to contract with and pay a physician to see that proper sanitary conditions are maintained at his camps. The physician, in so contracting, assumes a position involving considerable responsibility. He is required to carry out the duties devolving on a sanitary inspector in an organized community, is required to inspect the camps at least once in each month, and is required to report each month on the existing conditions to the Provincial Sanitary Inspector in his area. He is liable to prosecution if he fails to carry out his duties in a satisfactory way, and may be dismissed by the Provincial Department of Health.

THE ROLE OF THE SANITARY INSPECTOR

From the foregoing, it will be seen that a very complete system has been devised to control the conditions in camps. But the system, however good, requires proper supervision and also needs continual stimulation to keep it functioning. These are supplied by the six provincial sanitary inspectors who are required to see that these Regulations are enforced over the vast area of Northern Ontario. These inspectors are given the powers of a local board of health in an organized community, so that they are enabled to give immediate instructions on any matter pertaining to public health. It is to these men that the credit is due for the great improvement in camp sanitation. The result of their efforts is evidenced in the low incidence of typhoid fever. The entire absence of this disease in pioneer construction work over long periods can only be attributed to the attention which they have given to the control of flies and to the safeguarding of water supplies. The manner in which, time after time, communicable disease is nipped in the bud in camps, while it may continue to spread through adjoining municipalities, speaks for itself.

Every inspector endeavours to visit personally every new camp during its construction. To cover the various camps they have to use any kind of transportation available, from snow-shoes and dog-teams to aeroplanes, in all kinds of weather. Each inspector becomes in his district the general guide in all matters pertaining to public health, for his duties only begin with the supervision of industrial camps and the health of their inhabitants. He has to assume the ordinary duties of a county sanitary inspector (and medical health officer also) in the rural towns and villages, where it is usually more difficult to secure sanitary surroundings than in the camps. Holiday camps are also under his care. He provides local supervision of health administration in the organized communities in his district.

PUBLIC HEALTH NURSING SERVICES

Apart from the provincial sanitary inspectors, there are in most districts provincial nurses whose duties have to do largely with the rural school popu-

lation, particularly the control of communicable diseases. These nurses have an onerous work to perform and have rendered great service. In most areas it is the usual thing to find that all the children have been immunized against diphtheria. Systematic examination of school children for dental and vision defects is organized by them, although many of the defects found are not remedied, chiefly owing to the impoverished condition of many of the settlers. There have been clinics for dental treatment and some work also has been done in providing glasses for children with defective vision, but a great deal has still to be done on the remedial side.

URBAN PROBLEMS IN NORTHERN ONTARIO

In some of the organized communities in Northern Ontario especial difficulties exist in the provision of sewer and water facilities. These have arisen owing to lack of foresight in the past and to the fact that the successful gold mining areas seem always to be associated with lake areas. The lack of foresight has been shown in some outstanding instances in the choice of townsites; with the result that—as in the case of Kirkland Lake—enormous sums of money have had to be expended in providing sewer and water facilities, in building foundations and in the making of streets through solid rock and muskeg swamps; while the relationship between the mines and lakes has resulted in the filling up of lakes and the pollution of streams for considerable distances with slimes (the waste ground rock from producing mines). Proposals for new townsites are now referred to the Provincial Department of Health so that these may be located on suitable ground where facilities exist for the ordinary sanitary services; and considerable care is being taken in the prevention of slime pollution of waters likely to be required for future domestic water supplies.

A general survey of the North would show that in most of the organized areas conditions will compare well with similar places in the South: many of these have water and milk supplies which are equal to the best. The ordinary sanitary services are good; but more care might be taken to prevent stream pollution; and there is considerable lack of provision for the hospitalization of communicable diseases. In the rural areas the housing is generally of an indifferent type amongst the poorer settlers, providing increased opportunity for contact infection in tuberculous cases. The chief lack of these poorer houses is ventilation during the winter months, a defect which can be remedied by instructing new settlers in the proper building of their homes. The mining areas present considerable tuberculosis, which seems to be associated with silicosis, and there is room for improvement in the segregation and handling of such cases. Control of the spread of venereal disease presents real difficulties. However, one must remember that this is a new country in the making, with a widely scattered population, and, no doubt, many of these shortcomings will be corrected as time goes on. On the other hand, the claim can certainly be made that a very difficult situation has been met in a quite successful manner.

Duration of Schick Immunity

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THE purpose of this Schick-test study was to find the duration of the "Schick immunity" conferred by three doses of diphtheria toxoid.

Dr. W. H. Hutton, Medical Officer of Health, Brantford, sent letters to the parents of three groups of children who had been given three doses of toxoid in the city clinics five years, three years, and one year before, respectively. The letters invited the co-operation of the parents and children in determining whether the presumed immunity conferred by toxoid was lasting.

Ninety-four children presented themselves for the Schick test April 16, 1935. The Schick test consisted of the intradermal injection of 0.1 cc. of Schick-test toxin stabilized with 0.4 per cent gelatine in borate buffer solution, and a control of diluted toxoid. The Schick-test toxin complied with the requirements recommended by the League of Nations. The Schick-test reading was made on the fifth day after the injections. The Schick product used has been tested on large groups of persons and the results checked against antitoxin titrations done by a modification of Romer's method (1). We found in a previous study (2) that with this product correct interpretations of the Schick test were made in every instance, which was not the case with certain other products in which the control consisted of heated toxin. Our results (2) corroborate the findings of Fraser and Halpern (3) that the level of Schick immunity with this product is in the vicinity of 1/250 unit of antitoxin per cc. of serum; that is to say, persons with that amount of circulating antitoxin are Schick negative. It may thus be assumed that the Schick tests carried out in this study gave a true estimate of the Schick immunity in the persons tested.

The records of toxoid treatment of these children were available and complete. All had had three doses of formol toxoid in dosages of ½ cc., ½ cc., and 1 cc., respectively, at three-week intervals. Schick tests were not done before or after the toxoid was given. In the City of Montreal (4) 99.6 per cent of children tested six months after the final injection of three doses of toxoid of ½ cc., 1 cc. and 1½ cc. respectively, were Schick negative. Fraser and Halpern (unpublished) found that 99.5 per cent of 211 children previously Schick positive and given similarly three doses of toxoid (0.5 cc., 0.5 cc., 1 cc.) had more than 1/250 unit at three or six months after the final dose of toxoid; 97.2 per cent had more than 1/100 unit. In view of these facts there is at least very strong presumptive evidence that a very high percentage of the children of the Brantford group were Schick negative after their course of toxoid. These children have been living in a "non-diphtheria" environment,

only four cases being reported in this city (population 30,000) since 1929 and none since 1933.

RESULTS

Forty-one children who were given three doses of toxoid in March, 1930, were Schick tested in this study. Of these 41, 20 were male and 21 female. Their ages varied from 5 to 15 years, which means that when they received toxoid their ages were one to ten years. Fourteen of the 41, or 34 per cent, were found to be Schick positive, and 27, or 66 per cent, were Schick negative.

TABLE I

RESULTS OF SCHICK TESTS, BRANTFORD, APRIL 16, 1935

Three doses given in	Number of children in group	Schick Test			
		Positive		Negative	
		Number	Per cent	Number	Per cent
1930	41	14	34	27	66
1932	24	2	8	22	92
1934	29	1	3	28	97
Total	94	17		77	

The second group received three doses of toxoid in March, 1932. Twenty-four children were in this group; 9 were male and 15 female. Their ages at the time they received toxoid were 1-11 years, most of them being 1-3 years of age. Two of the 24 were Schick positive, both girls aged 3 and 5 years, respectively.

The third group were given the same toxoid treatment as the other two, in March, 1934, 14 months before the Schick test. Of 29 tested, one had a positive Schick test. Their ages at the time of the toxoid administration were from 1 to 10 years, most of them being 1 to 4 years of age.

DISCUSSION

It is seen above that 34 per cent of the children who received three doses of toxoid five years previously were found to be Schick positive. Although the numbers in this group are small, this proportion of Schick positives five years after three doses of toxoid has been confirmed by unpublished work of Fraser and Young in Toronto, who have done Schick tests on a large number of school children at various intervals after toxoid. If the Schick test is the criterion of immunity to diphtheria, then one-third of these children have lost their immunity within 5 years. It may be argued that a positive Schick test is not evidence of susceptibility since it only shows whether the person has more or less than 1/250 of a unit of antitoxin. Further, it might be maintained that these children with a Schick positive reaction had their primary stimulus (diphtheria antigen) and thus may rapidly produce antitoxin in the

event of a diphtheria infection and in this way avert a clinical attack of diphtheria. On the other hand, experience has shown that some children who have had three doses of toxoid do get diphtheria. It is evident that certain children of this Brantford group have lost at least one kind of measurable immunity (diphtheria antitoxin) as assessed by the Schick test. It is desirable to maintain children in the Schick negative state, which is widely accepted as indicating a resistance to clinical diphtheria. Recent results (unpublished) obtained by the Health Department of the City of Toronto indicate that children Schick positive two or more years after three doses of toxoid are rendered Schick negative in a very high proportion of cases one month after one additional dose of toxoid. It would be a rational and effective procedure in pre-school children who have had three doses of toxoid, to give 1 cc. of toxoid at the age of entering school. This practice is contemplated as a routine in the schools of Toronto.

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Redefining Public Health Objectives

THE current extension of public health work makes it extremely important that we should consider critically the work we are doing, appraise the effectiveness of procedures, discard the less useful, and take up with more vigour those tasks which promise a larger return for money and effort. . . . . Sometimes it has been said that we have been too much concerned with the internal organization of health service and too little concerned with the actual service rendered to the people. The public is interested in what it gets from its health department, not in its form of organization. Perhaps we have gone too far also in insistence upon a "balanced program" which, upon analysis, may mean mediocre performance in many fields in accordance with predetermined standards which have little or no scientific basis, rather than a determined and adequate frontal attack on the few major preventable conditions. — *Dr. Thomas Parran: Reporting Progress (presidential address to the American Public Health Association), Am. J. Pub. Health, 1936, 26:1071.*

The Enteric Disease Problem in Ontario

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DURING a five-year period, 1928-1932, enteric diseases caused more than 5,000 deaths in the province of Ontario. In this group have been included deaths from dysentery and typhoid fever. Of the total, 4,670 deaths were attributed to the diarrhoea-enteritis-dysentery group and 411 deaths (less than 10 per cent of this number) to typhoid fever. Twenty years ago the death rate from typhoid fever was 12.3 per 100,000. In 1934 this rate had declined to 1.4, the lowest record in Ontario. This decline is a source of satisfaction. Diarrhoea and enteritis, on the other hand, has continued to be ranked among the ten chief causes of death in every year for the past twenty years.

Attention has been focused on the success of the control of typhoid fever, particularly in urban centres, and stress has been laid on the problem of diarrhoea and enteritis under 2 years of age. The seriousness of this latter problem tends, however, to be overlooked and too often is accepted without a realization that it can and should be reduced. Further, there are a number of deaths in the older age-groups which are attributed to diarrhoea and enteritis. In fact, almost twice as many deaths were recorded from this cause during the five-year period 1928-1932 as were recorded from typhoid fever. This finding presents an aspect of the problem which calls for special study and investigation. The question is at once raised: what infection is responsible for these deaths in the older age-groups, causing approximately twice as many deaths as from typhoid fever?

The findings presented in this paper represent a statistical study of the mortality data relating to enteric disease in Ontario for the past twenty years. Deaths from diarrhoea, enteritis and dysentery have been considered in one group and deaths from typhoid fever separately. There were in addition deaths from ill-defined conditions, such as intestinal influenza, which are now tabulated under " influenza" and do not appear under "diarrhoea and enteritis".

Age Distribution of Mortality

An analysis was made of all deaths attributed to gastro-intestinal infections by age-groups for the five-year period 1928-1932. These data are presented in table I.

The diarrhoea-enteritis-dysentery group accounted for 92 per cent of the total number of deaths from enteric disease including typhoid fever. Of these

deaths 75 per cent occurred in infants under two years of age. Approximately one per cent of the deaths in this group occurred in each of the decades from 10 to 50, rising to 1.3 per cent in the age-group 50 to 59, 2.4 per cent in 60 to 69, and 7.4 per cent in the age-group 70 years and over. Thus there was a definite increase in the number of deaths from diarrhoea and enteritis in the age-groups over 50 years. Although the total number of deaths from diarrhoea and enteritis in the age-groups over 5 years constituted but a small part of the

TABLE I

DEATHS FROM ENTERIC DISEASE BY AGE-GROUPS

Ontario, 1928-1932

Age-group	Typhoid Fever		Diarrhoea, Enteritis and Dysentery	
	Number of deaths	Per cent of total typhoid	Number of deaths	Per cent of total D.-E.-D.
0-4	16	3.9	3920	83.9
5-9	13	3.2	69	1.5
10-19	76	18.5	25	0.5
20-29	114	27.7	45	1.0
30-39	55	13.4	43	0.9
40-49	49	11.9	51	1.1
50-59	35	8.5	62	1.3
60-69	33	8.0	111	2.4
70 & over	20	4.9	344	7.4
Total	411	100.0	4670	100.0

number of deaths from this cause, yet the number is a very significant one, being approximately 150 a year, twice the number occurring from typhoid fever.

The age distribution of these deaths is in contrast to that which occurs in typhoid fever. In table I the distribution for a five-year period indicates that less than 8 per cent of the deaths recorded were in children under 10 years of age. Approximately 70 per cent of the deaths from typhoid fever occurred in the age-group 10 to 49 years. In persons over 50 years of age the number of deaths steadily decreased so that in the age-group 70 years and over the rate was approximately 5. The contrast between the distribution of typhoid fever and the diarrhoea-enteritis-dysentery group is shown in the occurrence of 20 deaths from typhoid in this age-group and 344 deaths from diarrhoea and enteritis. Typhoid fever is not a serious problem among children under 5 years and in persons 70 years and over, but in these two groups more than 90 per cent of the deaths from diarrhoea and enteritis and dysentery were recorded.

TREND OF MORTALITY

Figure I illustrates the trend in mortality from enteric infections for the period 1915-1934. In 1915 the combined mortality from the diarrhoea-enteritis-dysentery group in Ontario was 45 per 100,000 population. In 1920 the rate

reached a peak of over 60. Marked fluctuations in the rate occur. In 1934 this mortality reached its lowest level, namely 21 per 100,000.

On the other hand, there has been a striking decline in the mortality from typhoid fever, the mortality now being only one-tenth of what it was twenty

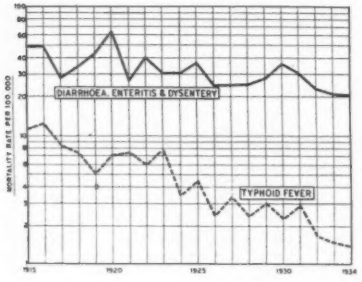

FIGURE I

DIARRHOEA, ENTERITIS AND DYSENTERY AND TYPHOID FEVER, ONTARIO, 1915-1934, MORTALITY RATES PER 100,000.

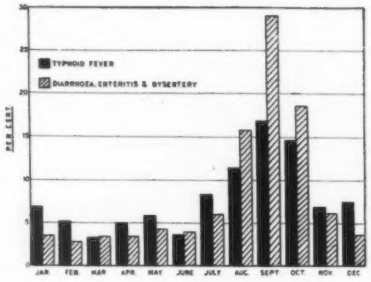

FIGURE II

SEASONAL DISTRIBUTION OF DEATHS FROM TYPHOID FEVER, AND DIARRHOEA, ENTERITIS AND DYSENTERY, ONTARIO, FOR THE FIVE-YEAR PERIOD 1928-1932.

years ago. It is noteworthy that the minor increases in the mortality from typhoid fever (1923, 1925, 1927, 1929 and 1931), shown in this figure, were not in general accompanied by increases in the mortality from diarrhoea, enteritis and dysentery.

Seasonal Variations

Figure II shows the seasonal distribution of typhoid fever and the diarrhoea-enteritis-dysentery group for the five-year period 1928-1932. It will be observed that the peak for both was reached during the month of September. The seasonal distribution of the deaths from typhoid fever showed a trend similar to that for the diarrhoea-enteritis-dysentery group. The mortality due to diarrhoea, enteritis and dysentery showed a rather constant and regular seasonal variation. These seasonal variations in mortality applied in each of the age-groups, including 0 to 4 years and 70 years and over.

DISTRIBUTION OF DEATHS BY COUNTIES

Diarrhoea, enteritis and dysentery are an urban problem in contrast to typhoid fever which is now essentially a rural problem. The provision of pure water and the pasteurization of milk have practically eliminated typhoid fever in municipalities where such measures are employed.

During the five years 1928-1932, 18 (30.5 per cent), of 59 cities and towns of over 5,000 population in Ontario were free from typhoid fever. Many towns and cities having a low typhoid fever mortality rate have a very high mortality rate from diarrhoea, enteritis and dysentery. Of the 18, only 9 (50

per cent), had a death rate of less than 10 per 100,000 population for the combined group of diarrhoea, enteritis and dysentery.

Figure III shows the average mortality rates for 1928-1932 from diarrhoea, enteritis and dysentery per 100,000 population for the various counties and districts, exclusive of cities and towns.

FIGURE III

MORTALITY RATES PER 100,000 FROM DIARRHOEA, ENTERITIS AND DYSENTERY BY COUNTIES AND DISTRICTS (EXCLUSIVE OF CITIES AND TOWNS), ONTARIO, 1928-1932.

Rates: dark areas, 30 to 135 per 100,000; areas with vertical bars, 20 to 29; spotted areas, 10 to 19; unmarked counties and districts, 1 to 9 per 100,000.

The rates used in this graph were obtained by taking the average number of deaths for the 5 years, using the population of the county or district for the mid-year. It is seen that the dark areas had an annual mortality rate of from 30 to 135 per 100,000; areas with vertical bars, a rate of 20 to 29; the spotted areas, 10 to 19; and the unmarked counties and districts, a rate of from 1 to 9 per 100,000 population.

No correlation exists between the mortality rate for typhoid fever and the rates for diarrhoea, enteritis and dysentery. A county or district with a high death rate from the latter diseases does not necessarily have a high mortality rate from typhoid fever. Of 15 counties and districts showing the highest death rates for the diarrhoea-enteritis-dysentery group, 8 (53 per cent), had an average annual mortality rate from typhoid fever of less than 10 per 100,000 for the five-year period. In the same period four counties did not have a death from typhoid fever and yet their mortality rates from the diarrhoea-enteritis-dysentery group were not negligible. Almost 46 per cent of the

counties and districts had one death per 100,000 population for every 10 deaths from diarrhoea, enteritis and dysentery.

DISCUSSION

The problem of the occurrence of enteric disease as evidenced by the fact that more than 5,000 deaths were recorded during the five-year period 1928-1932 is one of the most serious public health problems demanding solution. There is cause for great satisfaction that epidemics of typhoid fever, which largely occurred in urban municipalities, are now prevented in all municipalities where milk and water supplies are satisfactorily protected. Typhoid fever as at present reported is largely a rural problem. The tremendous loss of infant life due to diarrhoea and enteritis is well known to the profession and public health workers. In spite of the adequate knowledge which we have concerning its prevention, more than 800 deaths occur yearly. In the study of 172 cases of gastro-intestinal infection at the Hospital for Sick Children (1), only 3 were exclusively breast-fed. Pasteurization of milk and chlorination of water play an important part but it is equally important that the mother and other members of the family should know the simple facts of how infection is transmitted. This can be accomplished primarily through the instruction given by the physician to the mother, supplemented by literature furnished by official and voluntary agencies. Food must be carefully handled and the mother must know how to prepare it safely and to keep it properly.

The study has indicated the need for the collection of data and the investigation of all deaths from diarrhoea and enteritis in the older age-groups as well as emphasizing the importance of further steps in the control of this cause of death in infants. Laboratory studies have indicated that dysentery organisms of the Flexner or Sonne type are largely responsible for the cases of diarrhoea and enteritis in infants. Examinations of blood samples and of stool specimens in cases of continued fever with diarrhoea have shown that these infections are not uncommon in Ontario.

As to the deaths in the older age-groups which are recorded as due to diarrhoea and enteritis, no specific information is available. As previously stated, the number of these diseases is from two to three times the number of recorded deaths from typhoid fever. It is possible that some of these are cases of typhoid fever. The wide use of laboratory facilities in the diagnosis of typhoid fever, however, renders it doubtful that many such cases would have occurred without being subject to laboratory study for typhoid.

The need for study of this problem is evident and an approach might be made through a study of the case when deaths are reported. Such a study can only be made through the close co-operation of physicians, medical officers of health, and local registrars of vital statistics. As diarrhoea and enteritis is not a reportable disease, investigation of the prevalence is not immediately possible. Such a study must be made before steps can be taken for control. The nature of the infection must be known and such essential data as the

attack rate in families, the circumstances and conditions of those attacked, and other epidemiological facts obtained.

In an approach to the problem a special data report sheet has been prepared for these cases and the Ontario Department of Health will be eager and willing to assist any local medical officer of health in obtaining information regarding local outbreaks. Such information would undoubtedly provide valuable clues to a solution of the problem and assist in the prevention of subsequent outbreaks.

SUMMARY

1. The problem of enteric disease, particularly diarrhoea, enteritis and dysentery, is one of the most important public health problems, accounting for more than 800 deaths a year in Ontario.

2. Although 75 per cent of the deaths from the diarrhoea-enteritis-dysentery group occurred in infants under two years of age, a significant number of deaths was recorded in the older age-groups. From two to three times as many deaths are recorded to these causes as to typhoid fever.

3. The decline in the number of deaths from diarrhoea and enteritis has not paralleled the rapid decline in the mortality from typhoid fever.

4. The seasonal distribution is essentially similar.

5. Ninety-two per cent of the deaths from the diarrhoea-enteritis-dysentery group occurred in the age-groups 0 to 4 years and 70 years and over, in contrast with typhoid fever where only 7 per cent occurred in these two age-groups.

6. No correlation was shown between the mortality rates for diarrhoea, enteritis and dysentery, and for typhoid fever in the counties of Ontario.

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Bacillary Dysentery in British Columbia*

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THE problem of bacillary dysentery in any community presents two distinct aspects, relating on the one hand to acute infections among infants, and on the other hand to the contact carrier and to the mild manifestations characteristic of these infections in adults.

Mortality statistics provide a rough index of the incidence of infantile dysenteric infections, since in a high percentage of infant deaths classified in the vital statistics reports as due to diarrhoea and enteritis the etiological agents have been identified as members of the dysentery group of micro-organisms (1, 2, 3). Table I illustrates the striking contrast between the infant mortality rates from diarrhoea and enteritis in British Columbia as compared with the other provinces of Canada.

TABLE I

INFANT MORTALITY FROM DIARRHOEA AND ENTERITIS BY PROVINCES—1929-1933

(Deaths per 100,000 Living Births)

Year	P.E.I.	N.S.	N.B.	Que.	Ont.	Man.	Sask.	Alta.	B.C.	Canada
1929	1,074	1,085	1,260	2,976	951	611	611	721	318	1,576
1930	1,544	1,278	1,956	3,265	1,201	1,152	1,134	623	359	1,860
1931	905	740	1,268	3,020	1,084	890	858	817	356	1,665
1932	740	628	814	2,167	654	885	846	700	264	1,206
1933	360	618	717	2,008	780	737	462	478	188	1,111

These figures undoubtedly do not represent the total mortality from diarrhoea and enteritis, for an unknown number reported as gastro-intestinal influenza, convulsions, etc., should be added to the total (4); nor are accurate case fatality records available from which the morbidity rate of these infections might be estimated; but such figures do serve to indicate the comparative extent of the problem in different localities.

The majority of cases in the adult group (which is the main source of infection for the acute and often fatal infantile disease) commonly suffer only a mild diarrhoea, the significance of which is overlooked; while carriers arising from these cases may comprise 5 per cent of the population during the dysentery season (McGinnis; unpublished data).

An investigation of the presence of agglutinins for *B. dysenteriae Flexner*

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and *Sonne* in the sera of the general population and of a group of mental hospital patients was undertaken in an attempt to determine the prevalence of bacillary dysenteric infections in British Columbia.

It has been shown that following infection with *B. dysenteriae Flexner*, agglutinins for this micro-organism persist in the serum for a year or more (5*a*, 6). While normal sera of man and animals usually agglutinate micro-organisms of the Flexner group in low titre, a limiting titre may be arbitrarily chosen to distinguish the reaction due to these normal agglutinins from that indicative of infection. With an antigen of average agglutinability, a titre of 1/100 or over is customarily regarded as diagnostic of present or past infection. All the known types of the Flexner group should be included in the antigens used in testing the agglutinin content of sera, though the infecting type of Flexner bacillus cannot be reliably determined from the character of the serum reaction. There is, however, some degree of correlation between the agglutinins in the serum and the antigenic character of the bacillus in the stools (5*b*, 7). In the case of Sonne infection, agglutinins tend as a rule to disappear more rapidly from the serum. Hence a titre of 1/50 is generally regarded as diagnostic of present or past infection with *B. dysenteriae Sonne* (5*b*, 8).

In the present study 480 unselected sera obtained from the Provincial Board of Health Laboratories in Vancouver were examined. Each serum was tested for agglutination with each of the five types of *B. dysenteriae Flexner*, V, W, X, Y and Z, obtained from the National Type Collection, London, and also with *B. dysenteriae Sonne*. The test suspensions were formalin-killed (0.1 per cent formaldehyde by weight) agar growths of smooth types in 0.85 per cent saline. Readings were taken after 24 hours at 52° C., the end point being read as that titre which showed any definite degree of agglutination. Serum dilutions were 1/20; 1/40; 1/80; 1/160. Definite agglutination at a titre of 1/160 was regarded as a positive result and therefore presumptive evidence of previous dysenteric infection.

The findings obtained for the above group are presented in table II. The titres shown are for *B. dysenteriae Flexner*, as in no instance was a diagnostic titre for *B. dysenteriae Sonne* encountered, while a very few sera agglutinated this latter micro-organism at a dilution of 1/20.

TABLE II

SERA FROM GENERAL POPULATION

Number of Sera	Titre <1/20	Titre 1/20	Titre 1/40	Titre 1/80	Titre 1/160
480	296	86	41	43	14
	61.7%	*17.9%*	*8.5%*	*9.0%*	*2.9%*

Thus 2.9 per cent of this group gave evidence of bacillary dysenteric infection of the Flexner type. This figure is somewhat lower than that reported by Felsen in a study of 300 sera in New York City, who found that from 4.3 to 8.7 per cent of the group gave a diagnostic titre with the different dysenteric antigens used in his study. Ritchie, who examined 792 sera, reported 30 per cent showing a titre of 1/128 for *B. dysenteriae Flexner* (9).

A second group, consisting of 186 sera from patients in a mental hospital, was tested. A diagnostic titre of 1/160 or over was given by 11.8 per cent in this group—an incidence four times that found in the general group. This finding is in accord with the well known endemicity of dysenteric infections in such institutions. One patient gave a titre of 1/320 for *B. dysenteriae Sonne*. This was the only serum of all those tested which gave significant agglutination with this antigen. The distribution of agglutinins in the group is shown in the following table.

TABLE III

SERA FROM MENTAL HOSPITAL PATIENTS

Number of Sera	Titre <1/20	Titre 1/20	Titre 1/40	Titre 1/80	Titre 1/160
186	96	12	30	26	22
	51.6%	*6.5%*	*16.1%*	*14.0%*	*11.8%*

The increased percentage of sera showing subdiagnostic titres of 1/40 and 1/80 (100 per cent increase at 1/40 and 55 per cent increase at 1/80) in the latter group, in which dysenteric infections are numerically much greater, would suggest that at least a portion of these might represent a falling level of specific agglutinins, rather than a high level of normal agglutinins. In the investigation of the individual case, it would therefore seem advisable to view such titres with suspicion.

SUMMARY

1. During the five-year period 1929-1933 the mortality rates among infants from diarrhoea and enteritis in British Columbia were consistently lower than in the other Canadian provinces.

2. 2.9 per cent of 480 sera from the general population and 11.8 per cent of 186 sera from mental hospital patients gave a titre of agglutination regarded as indicative of present or past infection with *B. dysenteriae Flexner*.

3. Significant agglutinins for *B. dysenteriae Sonne* were found in none of the sera from the general population, but the serum of one mental hospital patient agglutinated this antigen at a dilution of 1/320.

ACKNOWLEDGMENT

I wish to express my indebtedness to Dr. C. E. Dolman, Director of the Provincial Board of Health Laboratories, and to his staff for supplying the sera from the general population, and to Dr. U. P. Byrne for supplying the sera from mental hospital patients.

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EDITORIAL SECTION

THE CODEINE PROBLEM

ONE of the important resolutions passed at the annual meeting of the Canadian Public Health Association in Vancouver last June related to the control of the sale of codeine, urging that it be considered as a narcotic and included under the provisions of the Narcotic Drugs Act. This resolution was based on the evidence that the use of codeine has increased to an alarming extent, taking the place of other drugs difficult to obtain. Codeine has not been considered a habit-forming drug within the meaning of the Narcotic Drugs Act of Canada or by the League of Nations. There is, however, ample evidence that codeine is definitely a habit-forming drug and that there are many addicts. In the United States it has been recognized as a narcotic and its sale has been restricted.

It is pleasing that a remarkable reduction in the amount of codeine sold has been effected during the past year through the co-operation of the wholesale drug firms handling narcotics, the provincial pharmaceutical associations, and the Federal Department of Health. The amount of pure codeine licensed to enter Canada during the calendar year 1935 was 35,520 ounces. This year, to October 31st, 17,568 ounces had been recorded. Less than one-half the amount of codeine was sold by retail druggists in the first six months of this year as compared with the same period in 1935.

Several factors have contributed to this reduction, including Federal action on November 1, 1935, limiting the distribution of codeine to one ounce monthly to each pharmacist, and the enactment of legislation in Manitoba, Saskatchewan and British Columbia permiting of the sale of codeine only upon medical prescription. The results of such co-operative effort are strikingly indicated in British Columbia where from January to June, 1936, only 274 ounces were sold as compared with 2,221 ounces during the same months in 1935. The reduction in Ontario, on the other hand, was only from 2,981 to 2,413 ounces. At present 50 per cent of the codeine licensed to enter Canada is sold in that province. Marked improvement has been effected in Quebec, where the amount sold constitutes less than one-third of the total for Canada.

There is, therefore, an urgent need that action should be taken in Ontario

to control the sale of codeine, as has been done so successfully in other provinces. This calls for the requirement of prescription and the active co-operation of the pharmaceutical and medical associations. It is essential at the same time that measures be taken to limit the sale of the various barbiturates and certain other hypnotics that are freely sold without restriction of any kind. Such action has been taken in several of the provinces and it is most desirable that the sale of these drugs, as well as of codeine, should be safeguarded throughout Canada by adequate regulations. Without such action every restrictive step taken in regard to codeine and other narcotic drugs results in a larger sale of these hypnotics, constituting an increasing menace to health.

THE CONTROL OF DIARRHOEA AND ENTERITIS

THE publication in this issue of two papers on enteric disease in Ontario and British Columbia draws attention to the need for adequate information concerning the cases of diarrhoea and enteritis that occur not only among infants but in the older age-groups.

There is ample evidence that a very large percentage of the cases of diarrhoea and enteritis, and without question those that result fatally, are due to a specific infection. The important studies of Mrs. Marion Maitland Johnston at the Hospital for Sick Children, Toronto, cleared away all doubt in regard to the etiology of such conditions as had been described as intestinal intoxication, summer diarrhoea, cholera infantum, and in other more or less meaningless terms. The study showed that a variety of pathogenic organisms of the dysentery group was frequently found, including *B. dysenteriae Flexner* and *B. dysenteriae Sonne*. As a result of this study, health officers are able to direct intelligently their efforts for the prevention of such infections by informing mothers of the manner in which infection is transmitted and the necessity of proper personal hygiene and attention to the sanitation of the environment.

That *B. dysenteriae Flexner* is not uncommon in Canada is indicated by laboratory studies in Ontario and in other provinces. With our present knowledge it is not possible to do more than state that in all probability the causative agents responsible for most of the cases of diarrhoea and enteritis will be found to be members of the dysentery group. As suggested in Dr. Hardman's article in this issue, an intensive study should be undertaken, through the co-operation of the practising physicians, of all deaths from diarrhoea and enteritis in the older age-groups. The endeavour should be made to learn of the occurrence of cases and, especially, of outbreaks which would permit of prompt laboratory study.

Although reference has been made particularly to the problem in the older age-groups, it is obvious that greater attention should be given to the reduction of deaths from diarrhoea and enteritis among infants. If the death rates from these causes are calculated for various municipalities, it is apparent that the high rates from these causes are recorded in those municipalities which are not directing specific attention to safeguarding water and milk and to giving mothers the necessary information in regard to the prevention of such infections.

REPORTS FROM THE ANNUAL MEETING*

Part VI

REPORT OF THE COMMITTEE ON RESOLUTIONS

THE Committee on Resolutions, comprising Dr. M. R. Bow, Dr. J. G. FitzGerald, Dr. R. O. Davison, and Dr. J. T. Phair, presented the following resolutions which were unanimously adopted by the Executive Council and approved by the annual meeting in Vancouver, June 25, 1936.

BE IT RESOLVED:

1. THAT THE thanks of the Canadian Public Health Association be tendered to the press of Vancouver for the generous allotment of space given to the papers and deliberations of this Convention.

2. THAT THE Association extend to the management of the Hotel Vancouver their sincere appreciation of the excellent service provided for the members during the time of the Convention.

3. THAT THE felicitations of the Canadian Public Health Association in convention be extended by a representative of the Association to the American Public Health Association at the time of its annual meeting.

4. THAT THE Association notes with deepest regret the deaths of several of its members during the past year and requests that the Secretary be instructed to convey to the members of their families the sympathy of the whole Association in their bereavement.

5. THAT THE appreciation of the Association be extended to the municipal and provincial authorities for the generous assistance given to the Conference.

6. THAT THE hearty thanks of the Association be extended to the Remington Rand Company for the valuable assistance rendered to the local Committee on Arrangements in installing a complete and highly efficient system of registration and for other aid in the conduct of the meeting.

7. WHEREAS traffic accidents continue as an ever-increasing cause of preventable deaths and disabilities; and

WHEREAS a sound program of prevention requires that the causal factors be determined; and

WHEREAS it may be that personal factors, such as physical and mental disabilities and the effects upon the driver of structural conditions of the car are major considerations;

BE IT RESOLVED THAT the Canadian Public Health Association request its Executive Committee to take whatever steps may be found necessary to set up a special committee to study, from the public health point of view, the problem of automobile and other accidents.

8. WHEREAS the present quarantine procedure whereby all vessels entering the Maritime ports of Canada are subject to quarantine inspection;

THEREFORE BE IT RESOLVED THAT quarantine procedures be modified to include only such vessels as have quarantinable diseases on board at the time of arrival; have had quarantinable diseases on board during the voyage or come from an infected port so declared in the official list; and that deratization requirements as laid down in the Convention of Paris of 1926 be adhered to.

9. WHEREAS there is every evidence to show that there are existent in the Western Provinces rodents of a similar type to those found to be infected with sylvatic plague in the neighbouring states of the United States;

THEREFORE BE IT RESOLVED that this Conference urge that the Federal Departments of Health and Agriculture, co-operating with the Provincial Departments of Health and Agriculture, give early consideration to an adequate investigation as to the possible presence of infection by sylvatic plague among such animals in the Western and Pacific Coast provinces.

**Presented at the Twenty-fifth Annual Meeting of the Canadian Public Health Association, Vancouver, B.C., June, 1936.*

10. WHEREAS there is an evident nation-wide interest in the question of state health insurance;

BE IT RESOLVED that every consideration be given by the appropriate Government authorities to the securing of accurate data on the cost of contributory medical care by demonstrations in well-chosen areas.

11. THAT WHEREAS it has been shown that the use of codeine has increased to an alarming extent in Canada, taking the place of other drugs more difficult to obtain, evidence to this effect being volunteered by hospitals, doctors and druggists, and

WHEREAS codeine is classed as a narcotic and its sale restricted in the United States of America, and

WHEREAS codeine is not classed as a drug within the meaning of the Narcotic Drugs Act of Canada or by the League of Nations;

THIS CONVENTION urges that the Government of the Dominion of Canada give consideration to taking such action as may be necessary to include codeine in the list of drugs designated in the Narcotic Drugs Act.

RESOLUTIONS FROM THE SECTION OF VITAL STATISTICS AND EPIDEMIOLOGY

1. WHEREAS, in the opinion of the special conference called by the Section of Vital Statistics and Epidemiology of the Canadian Public Health Association in Toronto on May 4 and 5, 1936, the new death certificate introduced for use in January, 1935, has been received with general satisfaction, from the reports received from the various Provincial Registrars and Departments of Health throughout Canada, and promises to be a definite improvement over the certificate previously used;

AND WHEREAS, in letters received from the Registrar-General in Great Britain relating to the experience over the past eight years with the use of a similar form of medical statement, it appears that the difficulties early encountered in its use by the medical profession have been steadily reduced until now in only about one per cent of certificates is the certifying physician's opinion obscured by incorrect order of statement, proving the value of the present form of statement;

AND WHEREAS the experience in Canada relates only to less than one year in a number of provinces,

BE IT RESOLVED THAT this conference record its belief that the new certificate will be an important factor in improving the accuracy of mortality statistics and that the minor difficulties which have been reported in connection with its use will become less frequent as physicians become increasingly familiar with the new form.

BE IT RESOLVED FURTHER THAT no changes be made in the certificate as relating to the cause of death until a reasonable period of trial of several years be made and that in the opinion of this conference the inclusion on the certificate of the request for the period of duration for the cause or causes of death stated on the certificate should not be considered until the further experience referred to has been obtained.

2. WHEREAS, in the opinion of this conference, the use of the new death certificate will not accomplish its purpose of making more complete and accurate mortality statistics in Canada without the hearty and intelligent co-operation of the medical profession;

AND WHEREAS there are a number of common errors in certification, the correction of which would clarify the physician's viewpoint and simplify the task of those entrusted with the tabulation of mortality statistics;

AND WHEREAS the Dominion Bureau of Statistics has revised and enlarged the Pocket Reference for physicians as relating to the International List of Causes of Death under the title "A Manual on Death Certification";

AND WHEREAS this manual on death certification for physicians will be of great value both as a source of information for certifying medical practitioners in Canada and as an aid in teaching the fundamental principles and practices in death certification to medical students,

BE IT RESOLVED THAT this conference express its hearty approval of this action to the Dominion Bureau, believing that the publication of this manual in its new form and the making of copies available to physicians and to medical students in their graduating year will be a highly significant contribution to this objective.

BE IT RESOLVED FURTHER THAT the Section of Vital Statistics and Epidemiology of this Association supplement in every way the use of this manual by physicians, and that the attention of certifying medical practitioners be directed in a suitable manner, where possible, to the common errors in the use of the medical certificate and that further emphasis be placed on the desirability of simplicity in certification.

3. WHEREAS the present satisfactory status of vital statistics in Canada is due in large measure to the effective leadership and service rendered by the Dominion Bureau of Statistics;

AND WHEREAS the statistical studies undertaken by the Dominion Bureau on various aspects of vital statistics have been most helpful during the past few years,

BE IT RESOLVED THAT this conference express to the Dominion Bureau its sincere appreciation and express the hope that the Bureau may be able to continue to conduct studies in vital statistics, such as those published during the past few years.

4. WHEREAS the Fifth Decennial Revision of the International List of Causes of Death will be made in 1939;

AND WHEREAS the preliminary conference of the "Mixed Committee" representing the International Institute of Statistics and the Health Committee of the League of Nations will be held in October, 1936, in Athens;

AND WHEREAS certain recommendations relating to the revision of the International List will be submitted to the Dominion Bureau of Statistics and to the Department of Pensions and National Health of Canada for consideration;

AND WHEREAS in the opinion of this conference Canada should be officially represented,

BE IT RESOLVED THAT this conference strongly urge upon the Dominion Government the desirability that the Dominion Bureau be officially represented at the conference in Athens in 1936.

5. WHEREAS the low morbidity and mortality rates for diphtheria prevailing in most communities throughout Canada in recent years may have induced a feeling of false security,

BE IT RESOLVED that the Section of Vital Statistics and Epidemiology of the Canadian Public Health Association urge upon health authorities the continued need for maintaining and increasing, if possible, their efforts towards immunization against this disease.

6. THAT AS AN AID to more complete registration of birth, this Association urges that consideration be given by the school authorities to the necessary presentation of evidence of registration of birth in the case of every child seeking admission to school.

RESOLUTIONS FROM THE LABORATORY SECTION

(Committee on Standard Methods)

BE IT RESOLVED:

1. THAT THE Laboratory Section endorses the recommendation of the Committee on Standard Methods that the existing standard methods for the examination of water and sewage and for milk and dairy products as defined by the American Public Health Association be temporarily adopted as official standards by the Canadian Public Health Association.

2. THAT ON the publication of the eighth edition of the "Standard Methods" of the American Public Health Association as relating to water and sewage, the Committee on Standard Methods of this Section make such recommendations regarding optional methods as they may feel are desirable.

The eighth edition, together with the recommended alternate methods, will, when approved by the Association, constitute the standard methods of this Association.

RECOMMENDATIONS FROM THE COMMITTEE ON THE CERTIFICATION OF SANITARY INSPECTORS

BE IT RESOLVED:

1. THAT the regulation relating to the granting of the certificate without examination to holders of the certificate of the Royal Sanitary Institute, the Royal Sanitary Association of Scotland, or the Royal Sanitary Institute and Sanitary Inspectors Examination Joint Board be amended to require that application for certification without examination must be received prior to January 1, 1938.

2. THAT the regulation relating to fees be amended to provide for a fee of five dollars for candidates receiving the certificate without examination.

3. THAT the form of the certificate as presented be approved.

REPORT OF THE COMMITTEE ON NOMINATIONS

THE following report of the Nominating Committee, comprising Dr. F. W. Jackson, Dr. R. D. Defries, Dr. A. M. Menzies, and Dr. J. T. Phair, was unanimously adopted by the Executive Council and approved by the annual meeting in Vancouver, June 25, 1936.

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SECTION OFFICERS

Industrial Hygiene: Chairman, Dr. F. M. R. Bulmer, Toronto; Vice-Chairman, Dr. J. G. Cunningham, Toronto; Secretary, Dr. O. A. Cannon, Hamilton.

Laboratory: To be elected at the Christmas meeting of the Section.

Mental Hygiene: Chairman, Dr. Baruch Silverman, Montreal; Vice-Chairman, Dr. A. Doyle, Kingston; Secretary, Dr. S. G. Chalk, London.

Public Health Education: Chairman, Dr. G. F. Amyot, Vancouver; Vice-Chairman, Miss Mary Power, Toronto; Secretary, Dr. Stewart Murray, Vancouver.

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PLANS, PROGRAMS, AND PROGRESS

Creation of Ministry of Health in Quebec

At the session of the Provincial Legislature of Quebec which has just closed, a department of health was created under the direction of a minister of health. The Honourable J. H. A. Paquette, M.D., in addition to being Provincial Secretary, will be Minister of Health for the province. The new Ministry of Health replaces the Provincial Bureau of Health. By this action, administration of matters connected with public health, care of the insane, inspection of hospitals and charitable institutions, and supervision of public charities will be transferred from the Provincial Secretary's Department and vested in the Ministry.

Rocky Mountain Spotted Fever in Canada

The occurrence of definite cases of Rocky Mountain spotted fever in Canada is of interest. The first case to be notified occurred in Alberta in 1935. Attention was drawn to the possible occurrence of this disease in Alberta by the Provincial Department of Health eight years ago but only one case in which the diagnosis was not confirmed was reported until last year. In June and July of this year two cases of this disease were reported in Manyberries, Alberta, one patient recovering and the other case being fatal. In both cases the diagnosis was confirmed by serological examinations made through the co-operation of Dr. R. R. Parker at the Rocky Mountain Spotted Fever Laboratory in Hamilton, Montana. Two cases were also reported in British Columbia during this year, making a total of five reported cases of the disease.

For some years attention has been given by the Dominion Government to the study of blood-sucking insects and arthropods in Alberta and British Columbia. The work has been conducted at Kamloops, British Columbia, under the Entomological Branch of the Department of Agriculture. The importance of the work resulted in a special grant at the last session of the Dominion Parliament to permit of the acquisition of a thirty-acre tract three miles from Kamloops to provide more adequate facilities for the laboratory. Although the Entomological Branch is primarily concerned with the survey and study of insects in British Columbia, a close working arrangement with the medical profession is greatly desired. It is hoped that physicians will inform the Department of cases of insect-borne disease, thus permitting investigation. It is known that cases of tick paralysis occur and with the identification of definite cases of Rocky Mountain spotted fever the importance of ticks in the possible transmission of disease is emphasized. Some cases of tularemia have also been reported.

Outbreak of Bacillary Dysentery (Shiga) in Rosenhof, Saskatachewan

An epidemic of bacillary dysentery occurred in the McMahon district near Swift Current, Saskatchewan, particularly in the Mennonite village of Rosenhof, during the fourth week of September. The occurrence of this type of bacillary dysentery is rare in Canada and it is believed that the infection was brought into the community by some persons who returned from Mexico. Ninety-five cases occurred with twenty-eight deaths, all but four of the latter being in children. The outbreak was investigated by Dr. F. C. Middleton, D.P.H., of the Provincial Department of Health. Valuable assistance was rendered by Dr. O. M. Irwin, municipal physician of Coulee, and Dr. H. C. Burroughes, Medical Officer of Health of Swift Current. This outbreak is an example of the possible importation, facilitated by motor traffic, of diseases which are uncommon in Canada.

TUBERCULOSIS SURVEY IN CAPE BRETON, NOVA SCOTIA

AS a result of a detailed study of the problem of the high mortality rate from tuberculosis in the southern Cape Breton mining districts, conducted by Dr. H. G. Grant, Dean of the Faculty of Medicine of Dalhousie University, and Professor A. L. McLean under instructions from the Honourable F. R. Davis, Minister of Health, the recommendation has been made that a full-time health department be established in Cape Breton Island under the direction of a physician specially trained in public welfare, public health, and especially tuberculosis. Examination of 3,430 patients of the population of approximately 28,000 showed that the area compared favourably with the rest of Nova Scotia in the number of patients affected by the disease but that the mortality rate was unusually high. The Minister of Health, in publishing the report, expressed approval of the recommendations and stated that measures are under way for the establishment of such a health unit for Cape Breton Island and that it is hoped to have this organized next year. The survey was conducted at Glace Bay, Dominion, Reserve, Dominion 6, and other communities in Cape Breton County. The report emphasized the unsatisfactory sanitary conditions in many homes.

DISCUSSION OF STATE MEDICINE IN SASKATCHEWAN

FOR the purpose of urging state medicine in Saskatchewan a conference was held in Saskatoon on October 15th by sixty members of members of city councils, the medical profession, labour, agriculture, and women's organizations. The conference adopted the temporary name of the "Saskatchewan State Hospital and Medical League" and purposes to promote in every way possible the socialization of medicine in the province. The parent organization was established at Prince Albert in April, 1936, and eight local groups have been formed with a total membership of about seven hundred. The following officers have been elected: President, Dr. S. E. Moore, Regina; Vice-president, Alderman C. L. Dent, Prince Albert; Directors: L. J. Waine, Prince Albert; the Rev. W. G. Brown, Saskatoon; Frank Eliason, Saskatoon; Reeve M. S. Anderson, Bulyea; and J. R. Near, Pinkham.

POLIOMYELITIS IN MANITOBA

AN intensive study is being made, through the Provincial Department of Health and Public Welfare, of the clinical and epidemiological records of the 474 cases of poliomyelitis which were reported during the summer, 17 of which resulted fatally.

Provision has also been made by the Department for assistance in the aftercare of those who suffered from poliomyelitis by the appointment of Dr. Angus Murray, a prominent orthopaedic surgeon, who will visit all the cases and consult with local doctors in regard to treatment. It is estimated that there are seventy cases with residual paralysis. Probably twenty of these have complete paralysis of one or more limbs. In the epidemic of 1928 there were ninety cases seriously paralyzed.

MEETING OF THE DOMINION COUNCIL OF HEALTH

THE thirty-third meeting of the Dominion Council of Health was held in Ottawa on November 2nd and 3rd under the chairmanship of Dr. R. E. Wodehouse, D.P.H., Deputy Minister of Pensions and National Health. The following members were in attendance: Dr. H. E. Young, LL.D., Victoria; Dr. M. R. Bow, Edmonton; Dr. R. O. Davison, Regina; Dr. F. W. Jackson, Winnipeg; Dr. J. T. Phair, Toronto; Dr. Emile Nadeau, Quebec; Dr. Wm. Warwick, Saint John; Dr. P. S. Campbell, Halifax; Dr. B. C. Keeping, Charlottetown; Mme. S. D. Simard, Quebec; Mrs. H. D. Smith,

Vancouver; Mr. T. O. King, Raymond, Alta.; Mr. P. M. Draper, Ottawa, and Dr. R. D. Defries, Toronto.

PERSONALS

DR. K. F. BRANDON, D.P.H., has resigned from the Department of Epidemiology and Biometrics, School of Hygiene, University of Toronto, to accept an appointment on the staff of the Metropolitan Health Board for Greater Vancouver. Dr. Brandon will have charge of one of the health districts.

After an illness of several years which, however, did not deter him from continuing his university duties, Dr. Oskar Klotz, head of the Department of Pathology and Bacteriology, University of Toronto, died on November 3rd. Dr. Klotz was internationally known in pathology. As a special member of the Yellow Fever Commission of the International Health Board of the Rockfeller Foundation, he went to Nigeria, West Africa, in 1926 and rendered valuable services in the study of that disease. He was Professor of Pathology and Bacteriology in the University of Pittsburgh from 1910 to 1920 and Professor of Pathology in the Faculdade de Medicina at Sao Paulo, Brazil, for two years until 1923, when he came to the University of Toronto. Dr. Klotz took a prominent part in the work of the National Research Council of Canada and was a member of the Cancer Commission of Ontario and Chairman of the Research Committee.

The many friends of the late Dr. J. H. Radford of Galt, Ontario, will learn with deep regret of his passing. Dr. Radford was one of the pioneer health officers in Ontario and had been Medical Officer of Health for Galt for many years, retiring from this office in 1935. In 1932 he was honoured in being appointed President of the Ontario Health Officers' Association. As a practitioner Dr. Radford was known throughout Ontario, particularly as an obstetrician.

ASSOCIATION NEWS

CO-OPERATING COMMITTEE, ACTUARIES CLUB OF CANADA

ON the invitation of the Section of Vital Statistics, the Actuaries Club of Canada has appointed a committee to confer with the committees of the Section which are engaged in the study of health problems from the statistical standpoint. The co-operating committee consists of Mr. George Holmes, Actuary of the Manufacturers Life Insurance Company, as Chairman; Mr. M. D. Grant, Managing Director of the Sovereign Life Insurance Company, Winnipeg; and Mr. G. V. Brady, Assistant Actuary and Assistant Manager of the Metropolitan Life Insurance Company, Ottawa. The help of this committee will be greatly appreciated and will be of real value in furthering studies which are of vital interest to all concerned with public health.

COMMITTEE ON ACCIDENT PREVENTION

AT the annual meeting of the Association held in Vancouver last June the appointment was authorized of a committee to make a study of accident prevention, particularly from the medical standpoint. In several articles published in the JOURNAL during the past year attention was drawn to the seriousness of the situation and particularly to the increasing toll of motor car accidents. Dr. N. L. Burnette, Assistant Secretary of the Welfare Division, Metropolitan Life Insurance Company, Ottawa, has consented to act as Chairman. Other members of the committee are Dr. Grant Fleming, Dr. A. Hardisty Sellers, Dr. J. G. Cunningham, Professor S. N. F. Chant, Dr. J. T. Phair, and Dr. J. M. Livingston.

PROGRAM

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FIFTH ANNUAL CHRISTMAS MEETING

LABORATORY SECTION

Canadian Public Health Association

Royal York Hotel Toronto

DECEMBER 21 and 22, 1936

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Registration. By action of the Section Council a registration fee of 50c. will be charged to meet the expenses of the publication of advance abstracts, the Bulletin of Laboratory Procedures, and to assist in making possible the publication of the abstracts in the January issue of the JOURNAL.

MONDAY, DECEMBER 21st

Opening Session, 2.15 p.m.—PRIVATE DINING ROOM NO. 9, MAIN MEZZANINE FLOOR.

1. Chairman's Address—Dr. J. H. Orr, Department of Bacteriology, Queen's University, Kingston, Ont.
2. Immunity against Haemolytic Streptococci in the Rabbit—Dr. Frieda H. Fraser, Connaught Laboratories and School of Hygiene, University of Toronto.
3. Pneumococcus Typing in a Public Health Diagnostic Laboratory: Analysis of the Incidence of the Various Types—Dr. W. B. McClure, Division of Laboratories, Department of Health of Ontario, Toronto.
4. The Correlation of Specific Sensitization as it Occurs Clinically in Man and as Induced Experimentally in Animals—Dr. A. H. W. Caulfeild, Connaught Laboratories, University of Toronto.
5. Further Observations on Staphylococcic Infections of the Bovine Udder—Dr. Ronald Gwatkin, Ontario Research Foundation, Toronto.
6. Some Histological Changes in the Rabbit's Kidney following the Injection of Staphylococcus Toxin—Dr. John H. Glynn, Lecturer in Bacteriology and Immunity, McGill University.
7. B. WELCHII as an Indicator of Pollution in Sanitary Surveys—D. H. Matheson, M.A.Sc., Chemist and Bacteriologist, Hamilton Filtration Plant, Hamilton, Ont.
8. The Specificity of Typhoid and Paratyphoid Vaccines in Animals—Dr. M. H. Brown, Connaught Laboratories and School of Hygiene, University of Toronto.
9. Cultivation or Direct Smear in the Diagnosis of Gonococcus Infections?—Dr. J. E. Josephson, Toronto General Hospital.
10. A Case of Pyelitis admitted as Tuberculosis of the Kidney—Dr. D. A. MacLulich, Bacteriologist, Department of Pathology, Mountain Sanatorium, Hamilton, Ont.

Dinner, 6.45 p.m.—ENGINEERS CLUB, 350 BAY STREET. (Tickets $1.00)

Evening Session, 8.00 p.m.—ENGINEERS CLUB.

Informal discussion of subjects to be presented by:

Dr. Ronald Hare, Connaught Laboratories and School of Hygiene, University of Toronto: *Puerperal Sepsis.*

Dr. G. B. Reed, Professor of Bacteriology, Queen's University, Kingston: *Sub-acute Bacterial Endocarditis.*

Professor E. G. D. Murray, Department of Bacteriology, McGill University, Montreal: *Some Aspects of Bacteriological Taxonomy.*

Presentation of Reports of Committees.

TUESDAY, DECEMBER 22nd

Morning Session, 9.15 a.m.—PRIVATE DINING ROOM NO. 9, MAIN MEZZANINE FLOOR.

1. Control of Rancidity, Slight Rancidity and Other Defects in Ontario Cheddar Cheese—D. B. Shutt, B.S.A., Department of Bacteriology, Ontario Agricultural College, Guelph.
2. Agglutination of Certain Salmonella and Dysentery Bacterial Suspensions by Control Sera from Individuals in the City of Montreal—J. M. Desranleau, L. P. Lebeau, and M. H. McCrady, Division of Laboratories, Ministry of Health, Quebec.
3. An Investigation of the Source of Arsenic in a Well Water—Dr. J. Wyllie, Professor of Preventive Medicine, Queen's University, Kingston.
4. The Resistance of Guinea-pigs to Lethal Spore Doses of *Cl. tetani*, induced by Active and Passive Immunization—Dr. P. A. T. Sneath, E. G. Kerslake, B.V.Sc., and F. Scruby, Connaught Laboratories and School of Hygiene, University of Toronto.
5. The Relation of Constitution of Medium to the Production of Streptococcus Haemolysin—Dr. Frederick Smith, Assistant Professor of Bacteriology and Immunity, McGill University, Montreal.
6. Streptococcal Antitoxin Content of Human Sera—Dr. Helen Plummer, Connaught Laboratories and School of Hygiene, University of Toronto.
7. Infectious Mononucleosis: A Report of Six Cases—Dr. E. P. Johns, Institute of Public Health, University of Western Ontario, London.
8. The Antitoxin Level in Children after Toxoid—Dr. D. T. Fraser, Connaught Laboratories and School of Hygiene, University of Toronto.
9. Comparative Study of Dark Ground Illumination and Serological Tests for the Diagnosis of Primary Syphilis—Dr. A. L. MacNabb, Director, Division of Laboratories, Department of Health of Ontario, Toronto.
10. Antitoxin Response in Vitamin C Deficient Guinea-pigs—Dr. G. W. Cameron, Connaught Laboratories, University of Toronto.

Luncheon Session, 1 p.m.—TUDOR ROOM, MAIN MEZZANINE FLOOR. (Tickets $1.00)

Speaker: Dr. B. T. McGhie, Deputy Minister of Health of Ontario.

Report of the Committee on Nominations and Resolutions.

Afternoon Session, 2.15 p.m.—PRIVATE DINING ROOM NO. 9, MAIN MEZZANINE FLOOR

2.15. Program of demonstrations—Convenor, Dr. J. S. Kitching, Connaught Laboratories, University of Toronto.

3.00. The Typhus Group—Dr. R. E. Dyer, Senior Surgeon, United States Public Health Service, and Assistant Director, National Institute of Health, Washington, D.C.

The Prolongation of Insulin Action—Dr. D. A. Scott and Dr. A. M. Fisher, Connaught Laboratories, University of Toronto.

Study of Typhoid Carriers among 7,000 Food Handlers—Dr. James R. Scott, University of New Mexico, Albuquerque.

DEMONSTRATIONS

2.15. A device to facilitate and accelerate the uniform distribution of inoculum over the surface of poured plates—Dr. Redvers Thompson, Faculty of Medicine, Queen's University, Kingston, Ont.

2.25. Variation in type of growth of the colon-aerogenes group of bacteria when using several brands of bile salt—Norman J. Howard, A.A. Ox., F.C.I.C., Director, Filtration Plant Laboratory, Department of Public Health, Toronto.

2.35. Bacterial growth in broth media in presence of silver foil—Dr. C. Siebenmann, Connaught Laboratories, University of Toronto.

PAPERS TO BE READ BY TITLE

1. Immunity to Ricin acquired by Oral Administration—Dr. A. E. Allin, Connaught Laboratories, University of Toronto.
2. Diphtheria and Monkeys—Dr. D. T. Fraser and Dr. A. E. Allin, Connaught Laboratories, University of Toronto.
3. Value of Cortin in Preventing Diphtheria Intoxication—Dr. D. T. Fraser and Dr. A. E. Allin, Connaught Laboraties, University of Toronto.

BOOKS AND REPORTS

Security Against Sickness. *I. S. Falk. Published by Doubleday, Doran & Company, Inc., Garden City, New York, 1936. 423 pages. Price $4.00.*

The importance of sickness as a cause of economic insecurity is well recognized. The high cost of sickness, apart entirely from loss of wages involved, is furthermore a source of serious unrest. Substantial contributions to our knowledge of the situation as it exists on this continent were made by the research staff of the American Committee on the Costs of Medical Care from 1927 to 1933. The wealth of facts which were brought to light at that time has offered some measure of sound scientific basis for discussion and inquiry into our present problems in this field. The search for a solution of the problems involved in providing adequate protection for society against the risks of sickness has, however, but recently received the serious consideration it deserves in Canada.

To all who have read the reports of the American Committee, or are acquainted with the general findings, and to every person interested in the solution of existing difficulties in providing adequate medical care for everyone, *Security Against Sickness* has much to offer.

This book is the outcome of three years of intensive study by Mr. I. S. Falk, devoted to "a search for a rational basis for constructive action on certain problems arising out of illness". The first section deals with the present problems of illness costs and medical care in the United States. In the second part is given a very able review of the principal existing health insurance schemes. In each instance the facts have been carefully examined by the author in an attempt to demonstrate clearly the essential machinery involved and the extent of success or failure attending each system. The facts of known experience are considered in part three in relation to a scientific basis for a program for the United States.

While *Security Against Sickness* is written from the American viewpoint, since such was its purpose, there is little in the book which is not of interest to Canadians. It is a valuable source of data on existing schemes of health insurance and as such it may be heartily recommended for study to all medical officers of health and to all medical practitioners in Canada. The statement of "basic principles for an American program of group payment" is worthy of careful review. A fine collection of related material in the appendix is a feature and the notes and bibliography at the end of each chapter make the book a valuable source of reference.

A. Hardisty Sellers

Mother and Baby Care in Pictures. *Louise Zabriskie, Reg.N., Formerly Night Supervisor, Lying-in Hospital, New York City; Field Director, Maternity Center Association, New York City. The J. B. Lippincott Company, 525 Confederation Building, Montreal, 1936. 198 pages, 188 illustrations. $1.50.*

The new edition of "Mother and Baby Care in Pictures" is admirably illustrated and will undoubtedly prove an invaluable reference book to recommend to men and women of average intelligence. Its clarity, brevity, and apt illustrations add considerably to its teaching value. A fact sometimes overlooked and which is emphasized by Miss Zabriskie throughout is that fathers are "interested in the care that their wives and babies should receive and in what they can do to help most in providing that care for them".

In submitting two or three alternative recommended procedures, Miss Zabriskie gives further evidence of her broad understanding and ability to in-

terpret to others her practical nursing knowledge. Public health nurses will also find in "Mother and Baby Care in Pictures" a reliable means of obtaining information and assistance in planning for classes and demonstrations.

Elizabeth L. Smellie

Individual Exercises. *T. F. Stafford, H. B. DeCook, and J. L. Picard. A. S. Barnes and Co., New York, 1936. 11 pages, 100 illustrations. $1.00.*

School authorities are giving increasing consideration to physical education as a part of an adequate educational program. Believing that the selection of special exercises is not a simple task, the authors have prepared this book of selected exercises for a wide variety of conditions to serve as an aid to physicians, physical educators, and teachers.

The book is divided broadly into two sections. In the first specific disturbances or defects are discussed and exercises prescribed. In the second part a detailed description of each exercise is given with "stick-men" illustrations. These exercises are those used in the corrective physical education departments of three American universities.

It would seem worth while to have two separate editions of this book, one for physicians and health educators and one for laymen. This could be achieved by rewriting parts of the preface and certain sections of the text not intended for one or the other of these groups in its present form. The three authors are authorities in the field of corrective physical education and the book will serve a definite need.

P. A. Tilston

Elementary Human Anatomy based on Laboratory Studies. *Katherine Sibley, Professor of Physical Education, Syracuse University. A. S. Barnes and Company, New York, 1936. 380 pages and 213 illustrations. $4.50.*

This volume by Miss Sibley, who is well known for her work in this field, is offered as a text for students and teachers of physical education. The book is concise and adequate for the purpose. The provision of 213 illustrations adds substantially to its value and a glossary of medical terms is a useful feature.

P. A. Tilston

The Natural History of Disease. *John A. Ryle, M.A.,M.D.,F.R.C.P., Regius Professor of Physic in the University of Cambridge, Consulting Physician to Guy's Hospital, London. Oxford University Press, London, England, 1936. 433 pages.*

"The Natural History of Disease" is a collection of thirty-four papers, the majority of which deal "with subjects of general medical interest and more particularly with symptomatology and the portraiture of disease".

The method of presentation of the material and the style of the author are extremely refreshing. One is so accustomed to the prosaic, matter-of-fact type of medical writing that to find articles written with some literary acumen is a pleasure indeed. Not only is this book enjoyable reading but in its pages is a wealth of data, observation and reasoning—"gleanings from the current experience of a general physician" of high standing. The finer "art" of medical practice which is too often almost entirely omitted in didactic and even clinical teaching is brought out strongly in these essays.

This volume will be a very definite stimulus to practising physicians and perhaps particularly to undergraduate medical students, furnishing them an incentive to develop clinical observation and deduction to the utmost.

F. O. Wishart

CURRENT HEALTH LITERATURE

These abstracts are intended to direct attention to articles that have appeared in other journals during the past month. Any of the journals referred to may be borrowed for three days or longer if desired. Address requests to the secretary of the Editorial Board.

Weil's Disease in Fish-workers, A Clinical, Chemical and Bacteriological Study of Forty Cases

This paper deals with 41 cases of Weil's disease (spirochaetosis icterohaemorrhagica) occurring in Aberdeen during the previous 18 months. Forty of these cases occurred in fish-workers employed in 22 different fish-curing establishments and infection apparently occurred through contaminated water and slime. L. icterohaemorrhagiae was demonstrated in 14 per cent of 63 rats examined. The clinical manifestations of the disease are described and in addition their percentage incidence is analysed. Detailed case histories and post-mortem reports of two fatal cases are included. The recovery of the L. icterohaemorrhagiae from blood and serum of cases is described and the results of the Schüffner reaction carried out on the serum and urine of the cases are given. The authors again experienced difficulty in obtaining viable deptospirae from the urine of cases and consider that the presence of lysins in the urine is the main factor responsible for this difficulty, but they suggest that the chemical constitution of the specimen probably plays a secondary role in killing the leptospirae.

L. S. P. Davidson and J. Smith, Quart. J. Med., 1936, new series *5*:263.

The Incidence of Weil's Disease in Fish-workers in Aberdeen

The Schüffner sero-reaction was applied to blood samples (a) from workers in the fish trade and (b) from persons not engaged in the fish trade. Of 210 blood samples obtained from fish-workers, 51 (24.2 per cent) gave positive sero-reactions in dilutions of the sera ranging from 1 in 30 to 1 in 1,000. On the other hand, in the control series of 406 blood specimens no positive sero-reactions were obtained. The authors bring forward evidence which shows that leptospiral infections occur in three grades: (1) severe infections associated with jaundice; (2) mild infections with pyrexia but no jaundice (these are often "influenzal" in type); (3) latent or inapparent infections with no clinical manifestations but resulting in the development of specific antibodies responsible for a positive Schüffner sero-reaction.

J. Smith and L. S. P. Davidson, J. Hyg., 1936, *36*:438.

Chemoprophylaxis of Poliomyelitis

This is a progress report on an attempt to protect monkeys against intranasal infection with poliomyelitis by chemical means. In these studies 112 controls were used, 84.8 per cent of which developed poliomyelitis on intranasal instillation of the virus.

Sixteen monkeys were given 3 successive daily intranasal irrigations with 1 per cent aqueous picric acid. Three succumbed after intranasal instillation of virus given 1 to 8 days later. Of the 13 survivors, 10 resisted a second virus instillation 18 to 39 days after treatment. Of the 10 survivors 8 were tested 40 to 68 days after treatment and 5 survived. Of these 5 survivors, 2 out of 3 developed poliomyelitis after a fourth instillation. The survivor withstood a fifth instillation 92 days after treatment but developed poliomyelitis after a sixth instillation on the 121st day after treatment. Twelve monkeys were given 1 per cent mercurochrome intranasally and 10 of these resisted instillation of the virus 1 to 10 days later. Nine survivors were reinoculated 31 to 60 days after treatment and 2 developed poliomyelitis. The authors tried other chemicals but consider that 1 per cent picric acid in saline most suitable for human use. They suggest that the solution be applied with an atomizer on 3 successive days and thereafter every 7 to 10 days during an epidemic.

E. W. Schultz and L. P. Gebhardt, California & West. Med., 1936, *44*: 2.

MEMBERSHIP

THE ASSOCIATION was incorporated in Ontario in 1910 and under Dominion charter in 1912 as Canada's national health association.

Its purpose is the advancement of public health and preventive medicine throughout Canada.

It is achieving this objective through the organisation of its work into Sections, each actively concerned with the problems in its particular field . . . the formation of national committees studying important problems . . . the holding of annual national and provincial meetings . . . and the publication of a monthly journal, The CANADIAN PUBLIC HEALTH JOURNAL, internationally recognised as an important scientific publication reflecting the progress of public health in Canada.

Its members include 2,000 physicians, who are serving as medical officers of health in Canada, and 700 public health nurses, public health engineers, laboratory workers, and statisticians.

Active membership in the Association is limited to those professionally engaged in public health work in Canada.

Associate membership is open to others in Canada and elsewhere who are interested in public health and preventive medicine.

Affiliation may be made with one or more of the Sections of the Association: *Child Hygiene, Industrial Hygiene, Laboratory, Mental Hygiene, Public Health Education, Public Health Engineering, Public Health Nursing, Social Hygiene,* and *Vital Statistics and Epidemiology.*

The **membership fee,** including subscription for the CANADIAN PUBLIC HEALTH JOURNAL, is $2.00 a year in Canada, $2.50 in Great Britain and the United States, and $3.00 elsewhere. Fees are payable in advance.

The membership year is January 1st to December 31st.

Those making application during the first six months of the year will be entered as of the first of the year and will be sent copies of the JOURNAL from January.

Those applying after June 30th will be billed for the six months July to December of the current year and for the following year. They will receive copies of the JOURNAL from July.

CANADIAN PUBLIC HEALTH ASSOCIATION

"Don't worry about me —it's just a Cold"

THE common cold is bad enough in itself. But the real danger is that it may blaze the trail for more serious diseases or reduce your resistance to their attacks.

Before you realize it, what you think is just a "cold" may develop into influenza or even pneumonia. Don't forget that pneumonia may also start suddenly, even without a cold.

The first symptoms of pneumonia are usually chilliness or a severe chill, pain in the chest or side, headache, cough, and fever. Such symptoms mean that not a second should be lost. Go to bed and send for your doctor. Remember that pneumonia is a communicable disease. Proper nursing, complete rest and reasonable isolation are absolutely essential.

Lobar pneumonia is caused by many different types of the pneumonia germ—but each type is specific and can be identified. Should anyone in your family have pneumonia, your doctor will probably arrange for an immediate laboratory examination of the sputum to determine which type of pneumonia is present.

Serums are available which are highly effective in treating certain of the types. Not all cases of pneumonia should have serum treatment. Your doctor will decide.

Pneumonia is a serious infection, but with the increasing defenses, medical scientists hope to reduce its heavy toll. During the next four months it will do the most damage to those who are not on guard. If your physical resistance is lowered by overwork or unusual fatigue, too little sleep, overindulgence in food or drink, or exposure to cold and wet, pneumonia germs may gain quick headway.

At this time of the year it is a wise precaution to have your doctor look you over very carefully to see whether or not you have diseased tonsils, sinuses, adenoids, teeth, or other physical impairments which may lower resistance.

You will be much safer during the coming winter months if you keep your vitality high.

Send for the Metropolitan's booklet, "Colds, Influenza, Pneumonia," which contains valuable information about the prevention and care of these diseases. Address Booklet Department 12-J-36

Keep healthy—be examined regularly

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